



PATENTS

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: )  
 )  
 **Gil R. Hawley, et al.** )  
 )  
 Serial No.: **10/672,785** ) Art Unit: **1713**  
 )  
 Filed: **September 26, 2003** ) Examiner: **Choi, Ling Siu**  
 )  
 For: **Polymerization Catalysts** )

**COMMENTS ON STATEMENT OF REASONS FOR ALLOWANCE**

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Mail Stop: Issue Fee  
Commissioner for Patents  
P. O. Box 1450  
Alexandria, VA 22313-1450

Sir:

In the Office Action and Notice of Allowance mailed May 4, 2006, the Examiner states that Claims 11-45 and 49-59 represent allowable subject matter over the closest references. The reasons for allowance are on pages 3-5 of this Office Action. In addition to the PTO's statement of reasons for allowance, Applicants provide the following comments.

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I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class mail in an envelope with sufficient postage addressed to: Mail Stop: Issue Fee, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450, on August 1, 2006.

*Sharon R. Dunn*

Sharon R. Dunn

Applicants are unaware of any reference of record, including McDaniel et al. (U.S. Patent No. 6,107,230), which either alone or in combination, teaches or suggests a process to produce a catalyst composition comprising:

contacting a catalyst precursor with at least one organometal compound and at least one organoaluminum compound;

wherein the catalyst precursor comprises at least one treated solid oxide compound and at least one alpha olefin; and

wherein the at least one treated solid oxide comprises a contact product of at least one solid oxide compound, at least one electron-withdrawing anion source compound, and optionally, at least one metal salt compound.

Further, Applicants are unaware of any reference of record, which either alone or in combination, teaches or suggests a process to produce a catalyst composition comprising:

contacting a catalyst precursor comprising a chlorided, zinc-containing alumina and propylene with at least one organometal compound selected from rac-dimethylsilylbis(1-indenyl) zirconium dichloride, rac-1,2-ethanediylbis(1-indenyl)zirconium dichloride, or rac-dimethylsilylbis(2-methyl-1-indenyl) zirconium dichloride and at least one organoaluminum compound selected from triethylaluminum or triisobutylaluminum.

Applicants are also unaware of any reference of record, including McDaniel et al. (U.S. Patent No. 6,107,230), which either alone or in combination, teaches or suggests a process to produce a catalyst composition comprising:

simultaneously contacting at least one treated solid oxide compound, at least one organometal compound, at least one organoaluminum compound, and at least one alpha olefin;

wherein the treated solid oxide compound is produced by a process comprising:

- a) contacting at least one solid oxide compound with at least one electron-withdrawing anion source compound;
- b) optionally, also contacting the solid oxide compound with at least one metal salt compound; and
- c) calcining the solid oxide compound before, during, or after contacting the electron-withdrawing anion source compound or the metal salt compound to produce the treated solid oxide compound.

Further, Applicants are unaware of any reference of record, which either alone or in combination, teaches or suggests a process to produce a catalyst composition comprising:

simultaneously contacting a chlorided, zinc-containing alumina; propylene; at least one organometal compound selected from rac-dimethylsilybis (1-indenyl) zirconium dichloride, rac-1,2-ethanediylbis (1-indenyl) zirconium dichloride, or rac-dimethylsilybis (2-methyl-1-indenyl) zirconium dichloride; and at least one organoaluminum compound selected from triethylaluminum and triisobutylaluminum.

Applicants are also unaware of any reference of record, including McDaniel et al. (U.S. Patent No. 6,107,230), which either alone or in combination, teaches or suggests a process to produce a catalyst composition comprising:

contacting a catalyst precursor with at least one organometal compound and at least one organoaluminum compound;

wherein the catalyst precursor comprises at least one treated solid oxide compound and at least one alpha olefin; and

wherein the treated solid oxide compound is produced by a process comprising:

- a) contacting at least one solid oxide compound with at least one electron-withdrawing anion source compound;
- b) optionally, contacting the solid oxide compound with at least one metal salt compound; and
- c) calcining the solid oxide compound before, during, or after contacting the electron-withdrawing anion source compound or the metal salt compound to produce the treated solid oxide compound.

Further, Applicants are unaware of any reference of record, which either alone or in combination, teaches or suggests a process to produce a polymer comprising contacting the catalyst composition obtained by the above process and additional alpha olefin in a polymerization zone under polymerization conditions to produce the polymer.

Applicants are also unaware of any reference of record, including McDaniel et al. (U.S. Patent No. 6,107,230), which either alone or in combination, teaches or suggests a catalyst composition comprising:

a contact product of a catalyst precursor with at least one organometal compound and at least one organoaluminum compound;

wherein the catalyst precursor comprises at least one treated solid oxide compound and at least one alpha olefin; and

wherein the at least one treated solid oxide comprises a contact product of at least one solid oxide compound, at least one electron-withdrawing anion source compound, and optionally, at least one metal salt compound.

Further, Applicants are unaware of any reference of record, which either alone or in combination, teaches or suggests a polymerization process comprising contacting the above catalyst composition and additional alpha olefin in a polymerization zone under polymerization conditions to produce a polymer.

Additionally, Applicants are unaware of any reference of record, which either alone or in combination, teaches or suggests a catalyst composition comprising:

a contact product of a catalyst precursor; at least one organometal compound selected from rac-dimethylsilylbis (1-indenyl) zirconium dichloride, rac-1,2-ethanediylbis(1-indenyl)zirconium dichloride, or rac-dimethylsilylbis (2-methyl-1-indenyl) zirconium dichloride; and at least one organoaluminum compound selected from triethylaluminum or triisobutylaluminum, the catalyst precursor comprising a chlorided, zinc-containing alumina and propylene.

Applicants are also unaware of any reference of record, including McDaniel et al. (U.S. Patent No. 6,107,230), which either alone or in combination, teaches or suggests a catalyst composition comprising:

a contact product of at least one treated solid oxide compound, at least one organometal compound, at least one organoaluminum compound, and at least one alpha olefin;

wherein the at least one treated solid oxide compound comprises a contact product of at least one calcined solid oxide compound, at least one electron-withdrawing anion source compound, and optionally, at least one metal salt compound.

Further, Applicants are unaware of any reference of record, which either alone or in combination, teaches or suggests a polymerization process comprising contacting the above catalyst composition and additional alpha olefin in a polymerization zone under polymerization conditions to produce a polymer.

Additionally, Applicants are unaware of any reference of record, which either alone or in combination, teaches or suggests a catalyst composition comprising:

a contact product of a chlorided, zinc-containing alumina; propylene; at least one organometal compound selected from rac-dimethylsilylbis (1-indenyl) zirconium dichloride, rac-1,2-ethanediylbis (1-indenyl) zirconium dichloride, or rac-dimethylsilylbis (2-methyl-1-indenyl) zirconium dichloride; and at least one organoaluminum compound selected from triethylaluminum and triisobutylaluminum.

Applicants are also unaware of any reference of record, including McDaniel et al. (U.S. Patent No. 6,107,230), which either alone or in combination, teaches or suggests a process to produce a polymer comprising:

substantially simultaneously contacting at least one organometal compound, at least one organoaluminum compound, at least one catalyst precursor, and at least one alpha olefin under polymerization conditions to produce the polymer;

wherein the catalyst precursor comprises a contact product of at least one treated solid oxide compound and at least one alpha olefin; and

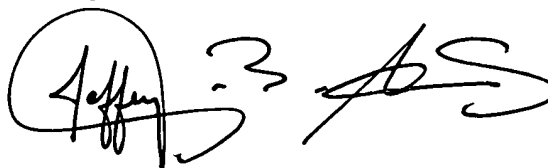
wherein the treated solid oxide compound is produced by a process comprising:

- a) contacting at least one solid oxide compound with at least one electron-withdrawing anion source compound;
- b) optionally, also contacting the solid oxide compound with at least one metal salt compound; and
- c) calcining the solid oxide compound before, during, or after contacting the electron-withdrawing anion source compound or the metal salt compound to produce the treated solid oxide compound.

Respectfully, Applicants do not concede that the PTO's stated reasons apply to all the claims, nor that the stated reasons are the only reasons for allowability of the claims.

No additional fees are believed due, however, the Commissioner is hereby authorized to charge any deficiencies which may be required, or credit any overpayment to Deposit Order Account No. 09-0528.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Jeffery B. Arnold", with a large, stylized flourish extending to the right.

By: Jeffery B. Arnold  
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Date: August 1, 2006

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